COMPLETE LISTING OF THE CLAIMS

The following lists all of the claims that are or were in the above-identified patent application. The status identifiers respectively provided in parentheses following the claim numbers indicate the current statuses of the claims.

1. (Previously Presented) An optoelectronic timing system comprising:

at least one semiconductor laser configured to issue subnanosecond optical pulses defining a periodic pulse train;

an optical timing system through which the pulses propagate, wherein the optoelectronic timing system asserts an electronic signal according to propagation of the optical pulses through the optical timing system;

a first optical waveguide coupled to the optical timing system, the first waveguide being configured to define a first time-quantifiable optical path for a pulse of the train;

a second optical waveguide coupled to the optical timing system, the second waveguide being configured to define a second time-quantifiable optical path for a pulse of the train different from the first waveguide; and

an optical switching system coupled to direct pulses from the semiconductor laser through the first optical waveguide or the second optical waveguide depending on timing of the pulses relative to prior pulses returned from the optical timing system.

2. (Previously Presented) The system according to claim 1, further comprising:

a third optical waveguide coupled to the optical timing system and to the optical switching system, the third waveguide being configured to define a third time-quantifiable optical path for a pulse of the train different from the first and second waveguide, wherein

lengths of the first, second, and third time-quantifiable optical paths have numerical relationships, such that a pulse traversing the first path defines a nominal travel time, a pulse traversing the second path has a travel time lengthened by a specific quantity with respect to the same pulse traversing the first path, and a pulse traversing the third path has a travel time shortened by a specific quantity with respect to the same pulse traversing the first path.

3. (Canceled)

4. (Canceled)

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5. (Previously Presented) The system according to claim 2, further comprising a previous pulse path and a subsequent pulse path that are operationally coupled to the optical switching system, arrival times of a previous and a subsequent pulse defining operation of the optical switching system such that the subsequent pulse is directed through the first, second or third time-quantifiable optical path.

6. (Previously Presented) The system according to claim 2, wherein the semiconductor laser develops pulses at a rate defining a time spaced-apart fundamental frequency of the optoelectronic timing system.

7. (Previously Presented) The system according to claim 6, wherein the system is configured to compare an actual arrival time of a subsequent pulse to an expected arrival time of the pulse and the pulse travel time is either advanced, retarded or maintained at a nominal condition by being directed through the first, second or third time-quantifiable optical path, so as to maintain a pre-defined time spaced-apart periodicity relationship between each pulse.

8. (Canceled)

9. (Previously Presented) In an optoelectronic timing system, an optical compensation method for advancing or retarding an optical pulse within a pre-defined pathway, the method comprising:

configuring at least one semiconductor laser to issue subnanosecond optical pulses defining a periodic pulse train;

configuring a first optical waveguide to define a first time-quantifiable optical path for a pulse of the train;

configuring a second optical waveguide to define a second time-quantifiable optical path for a pulse of the train different from the first waveguide, wherein the length of the second time-quantifiable optical path has a defined numerical relationship to the length of the first time-quantifiable optical path, such that a pulse traversing the second path has a travel time lengthened by a specific quantity with respect to the same pulse traversing the first path; and

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operating an optical switching system to direct pulses from the semiconductor laser through the first optical waveguide or the second optical waveguide depending on timing of the pulses relative to prior pulses returned from the optoelectronic timing system.

10. (Previously Presented) The method according to claim 9, further comprising:

configuring a third optical waveguide to define a third time-quantifiable optical path for a pulse of the train different from the first and second waveguide, wherein:

operating the optical switching system directs each pulse from the semiconductor laser through the first, second, or third optical waveguide depending on timing of the pulse relative to return of a prior pulse through the optical timing system; and

wherein the length of the third time-quantifiable optical path has a defined numerical relationship to the length of the first and second time-quantifiable optical paths, such that a pulse traversing the first path defines a nominal travel time, a pulse traversing the second path having a travel time lengthened by a specific quantity with respect to the same pulse traversing the first path, and a pulse traversing the third path having a travel time shortened by a specific quantity with respect to the same pulse traversing the first path.

11. (Canceled)

12. (Canceled)

13. (Previously Presented) The method according to claim 10, further comprising:

receiving a prior pulse on a previous pulse path to the switching system; and

receiving a new pulse from the semiconductor laser on a subsequent pulse path to the switching system wherein operating the switching system is such that arrival times of the previous and subsequent pulses determine whether the subsequent pulse is directed through the first, second or third time-quantifiable optical path.

14. (Previously Presented) The method according to claim 9, wherein the semiconductor laser develops pulses at a rate defining a time spaced-apart fundamental frequency of the system.

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15. (Previously Presented) The system according to claim 14, wherein the system is configured to compare an actual arrival time of a subsequent pulse to an expected arrival time

of the pulse and the pulse travel time is either advanced, retarded or maintained at a nominal condition by being directed through the first, second or third time-quantifiable optical path, so as to maintain a pre-defined time spaced-apart periodicity relationship between each pulse.

Claims 16-23 (Canceled)

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